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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/617,700

07/14/2003

Akinori Harata

2018-741

3731

23117

7590

09/08/2004

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EXAMINER

BARNEY, SETH E

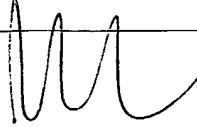
ART UNIT

PAPER NUMBER

3752

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/617,700	Applicant(s) HARATA ET AL. 
	Examiner Seth Barney	Art Unit 3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09629939.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,357,677 to Ren.

Regarding claim 1, Ren discloses a fuel injection valve (10) having:

-a valve body (20) providing a valve seat (not labeled, see Fig 1) on an inner surface (330) defining a fluid passage (430) whose cross-sectional area decreases toward a downstream side.

-a valve member (240) for cooperating with the valve seat to open and close the fluid passage. See column 4 lines 13 to 22.

-a plate (520) disposed on a downstream side of the fluid passage, the plate defining a plurality of through holes (526) for injecting fluid, the plate providing a chamber (536) just above the through holes

-wherein the chamber is defined by an approximately flat surface of the plate and extends substantially parallel with the plate (see Fig 2), and wherein the chamber is larger than a downstream end opening of the inner surface of the valve body, and

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wherein the through hole has an inlet opening at an area outside a projected area of the downstream end opening in an axial direction (Fig 2),

-wherein the chamber extends beyond the through hole by more than a diameter of the through hole (Figure 2).

-wherein an imaginary line (340) along the inner surface of the valve body directly crosses the plate at a crossing point (A), and

-wherein the through holes (526) are radially disposed (Fig 2) having a displacement with respect to the crossing point. See column 5 lines 15 to 17.

Regarding claim 2, the same rejection of claim 1 applies. Additionally Ren discloses a depression (not labeled, seen in Fig. 2) at the downstream end with the inlet of the through holes facing the bottom surface of the depression.

Regarding claim 3, the same rejection of claim one applies. Additionally Ren discloses the fuel injection valve wherein the valve body has a depression (not labeled, seen in Fig. 2) wherein the bottom surface of the depression extends parallel with the plate.

Regarding claims 7, 8, and 9, the through holes (526) disclosed by Ren have a round cross section shape as seen in Fig 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,357,677 to Ren in view of U.S. Patent No. 4,925,111 to Foertsch.

Foertsch discloses a plate (22) that is attached to the nozzle body (5) as seen in the Figure. It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve of Ren with the plate connection of Foertsch in order to securely mount the plate. Furthermore, it would have been an obvious to one having ordinary skill in the art matter of design choice to attach the plate directly to the valve body, since applicant has not disclosed that attaching the plate to the valve body solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the plate attached to another stable position.

Double Patenting

a. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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5. Claims 1 and 7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,616,072 to Harata in view of U.S. Patent No. 6,357,677 to Ren.

Claim 1 of the instant application recites a chamber that extends beyond a through hole by more than a diameter of the through hole, which structure is not recited in claim 1 of U.S. Patent No. 6,616,072 to Harata. Ren, as seen in Figure 2, discloses that the chamber extends beyond the through hole (526) by more than the diameter of the through hole. It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 1 of U.S. Patent No. 6,616,072 to Harata with the chamber of Ren in order to provide turbulence for enhanced atomization.

Claim 7 of the instant application recites the fluid injection nozzle having a through hole with a round cross-sectional shape, which structure is not recited in claim 1 of U.S. Patent No. 6,616,072 to Harata. Ren, as seen in Figure 3, discloses through holes (526) having a round cross section shape. It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 1 of U.S. Patent No. 6,616,072 to Harata with the through holes of Ren in order to attain a desired flow pattern. See column 5 lines 33 to 49.

6. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,616,072 to Harata in view of U.S. Patent No. 4,925,111 to Foertsch.

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Claim 4 of the instant application recites the fluid injection nozzle having a plate that is fixed to the valve body, which structure is not recited in claim 1 of U.S. Patent No. 6,616,072 to Harata. Foertsch, as seen in the Figure, discloses a plate (22) that is attached to the nozzle body (5). It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 1 of U.S. Patent No. 6,616,072 to Harata with the plate connection of Foertsch in order to securely mount the plate.

7. Claims 2, 3, 5, and 6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 of U.S. Patent No. 6,405,946 to Harata in view of U.S. Patent No. 4,925,111 to Foertsch.

Claim 2 of the instant application recites the plate is located at a far end of a downstream direction of the fluid injection nozzle, which structure is not recited in claim 2 of U.S. Patent No. 6,405,946 to Harata. Foertsch, as seen in the Figure, discloses a fuel injection valve with the plate located at a far end of a downstream direction of the fluid injection nozzle. It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 2 of U.S. Patent No. 6,405,946 to Harata with the location of the plate of Foertsch in order to eject the spray at the end of the fluid injection valve.

Claim 3 of the instant application recites a bottom surface of a depression extending substantially parallel with a plate, which structure is not recited in claim 2 of U.S. Patent No. 6,405,946 to Harata. Foertsch, as seen in the Figure, discloses a fuel injection valve with a depression (20) that extends parallel to the plate (22). It would

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have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 2 of U.S. Patent No. 6,405,946 Harata with the depression of Foertsch in order to provide turbulence for fine atomization.

Claims 5 and 6 of the instant application recites the fluid injection nozzle having a plate that is fixed to the valve body, which structure is not recited in claim 2 of U.S. Patent No. 6,405,946 to Harata. Foertsch, as seen in the Figure, discloses a plate (22) that is attached to the nozzle body (5). It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 2 of U.S. Patent No. 6,405,946 to Harata with the plate connection of Foertsch in order to securely mount the plate.

8. Claims 8 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,405,946 to Harata in view of U.S. Patent No. 6,357,677 to Ren.

Claims 8 and 9 of the instant application recites the fluid injection nozzle having a through hole with a round cross-sectional shape, which structure is not recited in claim 2 of U.S. Patent No. 6,405,946 to Harata. Ren, as seen in Figure 3, discloses through holes (526) having a round cross section shape. It would have been obvious to one having ordinary skill in the art to modify the fuel injection valve as recited in claim 2 of U.S. Patent No. 6,405,946 to Harata with the through holes of Ren in order to attain a desired flow pattern. See column 5 lines 33 to 49.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seth Barney whose telephone number is (703) 308-2603. The examiner can normally be reached on 8:30am-5:00pm (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mar can be reached on (703)308-2087. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seth Barney
Examiner
Art Unit 3752

SB


Super